

Borehole

60-07-10Log Event **A****Borehole Information**

Farm : <u>U</u>	Tank : <u>U-107</u>	Site Number : <u>299-W18-116</u>
N-Coord : <u>38,017</u>	W-Coord : <u>75,678</u>	TOC Elevation : <u>665.00</u>
Water Level, ft :	Date Drilled : <u>1/31/1976</u>	

Casing Record

Type : <u>Steel-welded</u>	Thickness : <u>0.280</u>	ID, in. : <u>6</u>
Top Depth, ft. : <u>0</u>	Bottom Depth, ft. : <u>105</u>	

Borehole Notes:

This borehole was drilled with a cable tool drilling rig, and the casing is apparently unperforated. The driller noted that the top 20 ft of the borehole was drilled as an 8-in. diameter hole. The temporary 8-in. casing was pulled out at the completion of drilling. Ten sacks of cement were used to grout the well.

Equipment Information

Logging System : <u>1</u>	Detector Type : <u>HPGe</u>	Detector Efficiency: <u>35.0 %</u>
Calibration Date : <u>10/1995</u>	Calibration Reference : <u>GJPO-HAN-3</u>	Logging Procedure : <u>P-GJPO-1783</u>

Log Run Information

Log Run Number : <u>1</u>	Log Run Date : <u>11/8/1995</u>	Logging Engineer: <u>Bob Spatz</u>
Start Depth, ft.: <u>98.5</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>50.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>

Log Run Number : <u>2</u>	Log Run Date : <u>11/9/1995</u>	Logging Engineer: <u>Bob Spatz</u>
Start Depth, ft.: <u>0.0</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>51.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>



Spectral Gamma-Ray Borehole
Log Data Report

Page 2 of 2

Borehole

60-07-10

Log Event A

Analysis Information

Analyst : D.C. Stromswold

Data Processing Reference : P-GJPO-1787

Analysis Date : 4/18/1996

Analysis Notes :

This borehole was logged in two log runs. The pre- and post-field verification spectra indicate that the logging system was operating properly during data collection. The energy/channel drift observed during the logging runs did not exceed the search parameters of the processing software, and multiple energy calibrations were not required to process the data. A data overlap occurred at a depth of about 51 ft when the same depth interval was logged between the log runs. The calculated concentrations were within the statistical uncertainty of the measurements, indicating acceptable repeatability.

The casing thickness is presumed to be 0.280 inch (in.), on the basis of published thickness for schedule-40, 6-in. steel casing. Casing-correction factors for a 0.280-in.-thick steel casing were applied during analysis.

Cs-137 was detected continuously from the ground surface to a depth of 8 ft, intermittently at depths from 10 to 16 ft, at a few isolated locations, and at the bottom of the borehole. The Cs-137 concentrations ranged between 0.2 and slightly more than 6 pCi/g.

Processed U-235 and U-238 concentrations related to uranium fuel materials waste were detected in this borehole. Processed U-235 was detected at depths from 52 to 54 ft, from 57 to 74 ft, and at 77 ft. The maximum U-235 concentration of slightly more than 40 pCi/g was measured at a depth of 53 ft.

Processed U-238 was detected continuously at depths from 52 to 54 ft, and almost continuously at depths from 57 to 78 ft. The maximum U-238 concentration of almost 1,000 pCi/g was measured at a depth of about 53 ft.

Details regarding the interpretation of the data for this borehole are presented in the Tank Summary Data Report for tank U-107.

Log Plot Notes:

Separate log plots show the man-made (e.g., Cs-137) and the naturally occurring radionuclides (K-40, U-238, and Th-232). The natural radionuclides can be used for lithology interpretations. The headings of the plots identify the specific gamma rays used to calculate the concentrations.

A combination plot includes both the man-made and natural radionuclides, in addition to the total gamma derived from the spectral data and the Westinghouse Hanford Company (WHC) Tank Farms gross gamma log. The gross gamma plot displays the latest available digital data from WHC with no attempt to adjust the depths to coincide with the SGLS data.

Uncertainty bars on the plots show the statistical uncertainties for the measurements as 95-percent confidence intervals. Open circles on the plots give the minimum detection level (MDL). The MDL of a radionuclide represents the lowest concentration at which positive identification of a gamma-ray peak is statistically defensible.